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10/806,206	03/23/2004	Takeshi Takahashi	119201	1908
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EXAMINER				
HODGE, ROBERT W				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/806,206

Applicant(s)

TAKAHASHI ET AL.

Examiner

ROBERT HODGE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2, 17 and 19-23 is/are pending in the application.
- 4a) Of the above claim(s) 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 17, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Election/Restrictions***

Newly submitted claims 21-23 are directed to an invention that is non-elected with traverse in the election filed 9/6/07. In applicants election applicants elected the surface element to be only zirconium, therefore claims 21-23 present surface element species that are not zirconium and claims 21-23 do not read on the elected species.

Accordingly, claims 21-23 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

Applicant's arguments filed 11/24/09 have been fully considered but they are not persuasive. First and foremost as noted above applicants elected the surface element to be only zirconium in their response filed 9/6/07. Therefore it is submitted that Watanabe reads on the elected invention alone since Watanabe teaches a lithium cobaltate particle covered with lithium zirconate. However since the non-elected species of Magnesium has been found in the prior art, the rejections will be maintained along with a rejection to just the elected invention.

With regards to Inoue applicants state that the protective layer is not present on a positive electrode active material and rely only on paragraph [0011] of the machine translation. However it is quite clear in the already provided English Abstract that Inoue teaches that the protective layer can be present on the negative electrode and/or positive electrode. Furthermore the Examiner

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requested and Oral translation of paragraph [0011] and the Oral translation is consistent with the English Abstract. Therefore since Inoue teaches a layer on the positive electrode it is therefore part of the positive active material.

Applicants also state that Inoue does not disclose MgO on the positive active material. Applicants are directed to paragraph [0008], wherein it lists the various oxides that can be present in the protective layer which includes MgO.

Applicants continue to argue that the prior art does not have the same properties as the instant invention and that the existence ratio is not inherently disclosed.

"When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433. See also Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

It should be noted that as a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

As disclosed in the instant specification and now instant claim 2, applicants are measuring the existence ratio by using an electron probe microanalyzer. In the field of analytical chemistry a plethora of instrumentation is

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available to determine various properties of any given material. Each instrument measures these properties in different ways. Therefore just because one prior art invention has not been tested using an electron probe microanalyzer does not mean that the material of the prior art does not have the same measured property as applicants recite in the claims. Furthermore claim 2 recites that the existence ratio is 20% or more (which includes 100%) and that the materials are uniformly coated. As has already been stated because the prior art teaches uniformly coating the materials onto the active material a prima facie case has been made that the existence ratio will in fact be at least 20% if not more and the burden has been properly shifted to applicants to prove otherwise, said burden has still not been met.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants state that Comparative Example 1-1 describes an electrode active material that would be identical to that disclosed by Watanabe in all material respects. However this is not the case. As stated by applicants Watanabe discloses mixing ZrO_2 with Li_2CO_3 and CoCO_3 with a 1:1 atomic ratio of Li and Co and this was baked in air at 900°C for 5 h. In contrast Comparative Example 1-1 of the instant specification discloses Li_2CO_3 with Co_3O_4 and ZrO_2 and calcining in air at 995°C for 7 hours. Applicants should be more than aware

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that CoCO_3 (from Watanabe) is not the same material as Co_3O_4 (from the Instant disclosure), and that baking at 900°C for 5 h (from Watanabe) is not the same process or duration as calcining at 995°C for 7 hours (from the instant disclosure) and therefore Comparative Example 1-1 is not identical to Watanabe and therefore it is also not the closest prior art of record and there can be no comparison of unexpected results since the products that are combined are completely different and the heating processes are completely different and the temperature and durations are also completely different. Again applicants still have not met their burden of proof and therefore the rejections will be maintained.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

In applicants' election filed 9/6/07 applicants elected to prosecute the species of zirconium only as the surface element. Therefore the non-elected species of magnesium is withdrawn from consideration pursuant to applicants' election filed 9/6/07

Claims 2, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 04-319260 hereinafter Watanabe.

As discussed in the instant specification background section and verified through an official English translation Watanabe teaches a positive electrode

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active material for a nonaqueous electrolyte secondary battery comprising LiCoO_2 particles that are covered with Li_2ZrO_3 which provides a stable positive electrode. As a result, a positive electrode active material exhibiting excellent cycle characteristics and storage characteristics can be obtained without causing a decomposition reaction of an electrolytic solution or crystal destruction even at high potentials (whole document and instant specification page 2, second paragraph). It is submitted that the method of Watanabe will cause the Li_2ZrO_3 to be uniformly dispersed on the LiCoO_2 particles since Watanabe teaches suspending all of the particles then forming a paste and then applying the paste to a plate with a rolling technique (paragraph [0012]) and therefore the burden is shifted to applicants to prove in the form of evidence otherwise. With regards to the measured property using an electron probe microanalyzer it is submitted that the final product of Watanabe will inherently have the same measured properties since Watanabe is uniformly distributing the paste as discussed above and the burden is shifted to applicants to prove in the form of evidence otherwise.

In the alternative it would have also been obvious to one having ordinary skill in the art to form the positive active material of Watanabe such that the "existence ratio" of zirconium on the surface of the lithium-transition metal oxide is greater than 20% in order to reduce the friction force among the active materials thereby increasing the flowability of the active material so that the positive electrode film has a higher density thus increasing the charge/discharge characteristics of the battery and also increasing the capacity of the battery. It further would have been obvious to optimize the "existence ratio" of zirconium

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and magnesium respectively on the surface of the lithium-transition metal oxide of Watanabe as modified by Inoue since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, in the absence of unexpected results. In re Boesch, 617 E.2d 272, 205 USPQ 215 (CCPA 1980).

Alternatively since the non-elected species has been found in the prior art the following rejection is made.

Claims 2, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of JP 09-147916 Inoue.

Watanabe as discussed above is incorporated herein.

Watanabe does not teach magnesium oxide on the surface of the lithium cobaltate.

Inoue teaches a spirally wound nonaqueous electrolyte secondary battery comprising a strip positive electrode having a positive electrode current collector, a positive active material layer comprising LiCoO_2 particles that are covered with a protective layer such as MgO , which achieves high voltages and high cyclability. Inoue further teaches a strip negative electrode having a negative electrode current collector and a negative active material is a carbon compound or a compound that is capable of intercalating and deintercalating lithium ions and a strip separator between and laminated with the positive and negative electrodes (Abstract, paragraphs [0004]-[0014], [0036] and [0060]). It is submitted that the method of Inoue will cause the MgO to be uniformly dispersed

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on the LiCoO_2 particles since Inoue teaches that the protective layer is painted on one or both surfaces of an electrode (paragraph [0011]).

At the time of the invention it would have been obvious to one having ordinary skill in the art to further provide a layer comprising magnesium oxide on the positive active material layer of Watanabe as taught by Inoue in order to provide a nonaqueous electrolyte secondary battery that achieves high voltages and high cyclability with excellent safety. If a technique has been used to improve one device (providing a protective layer comprising magnesium oxide on a positive active material layer comprising LiCoO_2 in Inoue), and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way (providing a protective layer comprising magnesium oxide on the positive active material layer comprising LiCoO_2 in Watanabe), using the technique is obvious unless its actual application is beyond his or her skill. See MPEP 2141 (III) Rationale C, KSR v. Teleflex (Supreme Court 2007).

It would have also been obvious to one having ordinary skill in the art to form the positive active material of Watanabe as modified by Inoue such that the "existence ratio" of zirconium and magnesium respectively on the surface of the lithium-transition metal oxide is greater than 20% in order to reduce the friction force among the active materials thereby increasing the flowability of the active material so that the positive electrode film has a higher density thus increasing the charge/discharge characteristics of the battery and also increasing the capacity of the battery. It further would have been obvious to optimize the "existence ratio" of zirconium and magnesium respectively on the surface of the

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lithium-transition metal oxide of Watanabe as modified by Inoue since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, in the absence of unexpected results. In re Boesch, 617 E.2d 272, 205 USPQ 215 (CCPA 1980). Therefore the burden is shifted to applicants to prove in the form of evidence that the invention of Watanabe as modified by Inoue does not exhibit the same existence ratios as the instantly claimed invention. Furthermore a skilled artisan would understand that the product of Watanabe as modified by Inoue will have uniformly dispersed zirconium and magnesium on the LiCoO_2 particles since they both teach that the zirconium and magnesium are uniformly dispersed respectively. With regards to the measured property using an electron probe microanalyzer it is submitted that the final product of Watanabe as modified by Inoue will inherently have the same measured properties since Watanabe and Inoue are uniformly distributing the materials as discussed above and the burden is shifted to applicants to prove in the form of evidence otherwise.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

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filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Hodge/
Primary Examiner, Art Unit 1795